

ASSIGNMENT 7

Textbook Assignment: "Front-End Loaders, Excavators, and Ditchers" and "Graders and Scrapers," pages 9-11 through 10-19.

Learning Objective: (continued)
Recognize the principles of loader operations.

7-1. Which of the following loader operational techniques provides greater force and penetration to loosen large rocks?

1. Squeezing the tip of the rocks with the clamshell
2. Digging under the rocks with the bucket
3. Dozing under the rocks with the blade
4. Back dragging the rocks with the clamshell

7-2. What action should a loader operator take when loading large rocks into dump trucks?

1. Drop small rocks in the dump bed to cushion the large rocks
2. Gently load the large rocks from the lowest possible height
3. Place a load of dirt or sand in the dump bed to cushion the large rocks
4. Load in the center of the dump bed with the clamshell

7-3. Improper loading techniques with a multipurpose bucket can cause unnecessary damage to the bucket.

1. True
2. False

Learning Objective: Recognize the principles of backhoe operations.

7-4. The digging depth of a backhoe attachment is limited by what components?

1. Bucket size and length of dipper stick
2. Length of boom and dipper stick
3. Bucket size and length of boom
4. Backhoe coupling and positive hydraulic pressure

7-5. What type of fitting allows the easy attachment of the backhoe to the loader?

1. Quick disconnect hydraulic fittings
2. Manual connect hydraulic fittings
3. Forced driven hydraulic fittings
4. Screw pin hydraulic fittings

7-6. After the backhoe is attached to the 515 dresser loader, the operator should raise the boom arm until the boom arm pivot point is approximately how many inches from the ground?

1. 6
2. 15
3. 20
4. 36

7-7. Which of the following problems results from setting the engine throttle in excess of that set for backhoe operations?

1. Creates excessive engine temperatures
2. Creates excessive digging pressure
3. Creates excessive hydraulic temperatures
4. Creates excessive boom swing

7-8. What action can an operator perform that signals a backhoe is warmed and ready for operation?

1. Check the hydraulic oil temperature
2. Check the engine oil temperature
3. Feel the backhoe hydraulic hoses for warmth
4. Feel the backhoe hydraulic rams for warmth

Learning Objective: Recognize the principles and components of the loader backhoe.

7-9. The loader backhoe tractor is equipped with a bucket of what size?

1. 1.3 cubic yards
2. 2.0 cubic yards
3. 2.5 cubic yards
4. 3.0 cubic yards

7-10. Which of the following components on the loader backhoe tractor provides equal power to both rear wheels?

1. Limited slip transmission
2. Positive traction transaxle
3. Differential lock
4. Multi-speed final drive

7-11. Disengaging the differential lock when the loader is turning or when one wheel is rotating faster than the other wheel can cause damage to the transaxle.

1. True
2. False

7-12. What is the first step an operator should perform when preparing to operate the backhoe attachment?

1. Rotate the bucket to the dump position
2. Remove the swing lockpin
3. Extend the length of the boom
4. Lower the stabilizers

7-13. The backhoe bucket can be adjusted to a total of how many digging positions?

1. One
2. Two
3. Three
4. Four

7-14. What condition results when an operator of a backhoe attempts to excavate a load that is too large?

1. Positive digging halt
2. Control lever shutdown
3. Hydraulic stall
4. Excavation refusal

Learning Objective: Recognize the principles and components of excavators.

7-15. Which of the following excavator mountings are used in the Naval Construction Force (NCF)?

1. Track
2. Truck carrier
3. Self-propelled wheel
4. All of the above

7-16. Which of the following is NOT a structural component of an excavator?

1. Revolving unit
2. Travel base
3. Winch assembly
4. Attachment

7-17. Which of the following structural components carries the engine, pumps, attachments, controls, and the operator's cab?

1. The revolving unit
2. The travel base
3. The winch assembly
4. The primary attachment

7-18. Which of the following mounting is the most commonly used excavator travel unit?

1. Track
2. Truck
3. Self-propelled wheel
4. Train

7-19. "A massive frame that includes the turntable and the dead axles or cross members that transmit weight to the track frames." This statement is a description of what component of an excavator?

1. The superstructure
2. The attachment assembly
3. The carbody
4. The counterweight

7-20. What is the rotation work range of a truck-mounted excavator in degrees?

1. 360°
2. 270°
3. 180°
4. 90°

7-21. Which of the following advantages does a truck-mounted excavator have over a track-mounted type?

1. Stability
2. 360° rotation work range
3. Low ground-bearing pressure
4. Rapid mobility

7-22. The front axle oscillation lock levers on the self-propelled wheel-mounted excavator are used to help stabilize the excavator during which of the following operations?

1. Travel
2. Working over the side
3. Loading on a low-bed trailer
4. Beach operations

7-23. Before traveling with an excavator, you should check the travel route for which of the following limits?

1. Weight
2. Height
3. Width
4. All of the above

7-24. You should stop traveling with the self-propelled wheel-mounted excavator after 2 hours of highway travel to allow the tires to cool for what period of time?

1. 1/2 hour
2. 1 hour
3. 2 hours
4. 3 hours

Learning Objective: Recognize the principles and components of excavator attachments.

7-25. Which of the following is NOT a structural member of a hydraulic excavator attachment?

1. Boom
2. Bridle assembly
3. Dipper stick
4. Bucket

7-26. An excavator boom that is concave toward the ground allows for which of the following operations?

1. Space to pull the bucket closer to the excavator
2. Permits deeper digging
3. Enables the operator to see past it when raised
4. All of the above

7-27. The bottom adjustment hole on the boom for connecting the boom cylinder rod eye provides what maximum operation?

1. Dump height
2. Digging depth
3. Reach
4. 360° rotation work range

7-28. What term is used to describe the operation of the bucket digging toward the excavator?

1. Excavation
2. Positive digging operation
3. Crowding
4. Reaching

7-29. Which of the following components supplies the required around-a-curve reach preventing the cylinder from being pulled in against the dipper stick when extended?

1. Dump arms
2. Boom connecting pins
3. Swing guide
4. Centralizer

7-30. A bucket is usually slightly wider at the rear of the bucket to reduce friction.

1. True
2. False

Learning Objective: Recognize the principles of backhoe digging operations.

7-31. Before performing any type of excavation, an operator should check or obtain what type of permit?

1. Landscaping
2. Operators
3. Digging
4. Environmental

7-32. What item determines how much material can be excavated during each digging cycle?

1. The engine rpm
2. Operator expertise
3. The length of the dipper stick
4. The type of material

7-33. What grade stakes should an operator NOT disturb because they are used as a reference when excavating a ditch?

1. Offset
2. Centerline
3. Shoulder
4. Slope

7-34. It is better to excavate 1 to 2 inches below grade than not excavate deep enough.

1. True
2. False

7-35. Which of the following situations can occur if an operator improperly plans an excavation?

1. Trap the machine
2. Machine cannot be positioned to complete job
3. Hand digging required to complete job
4. All of the above

7-36. A digging sequence should be planned to allow a maximum amount of spoil to be excavated before the machine is moved to the next position.

1. True
2. False

7-37. During an excavation, an operator should ensure what objective is reached before repositioning the backhoe?

1. Grade (depth) of excavation
2. Length of excavated material
3. Height of excavated material
4. Maximum compaction of excavation

Learning Objective: Recognize the principles of operations and components of ditchers.

7-38. What term is used to describe a temporary cut made in the earth for underground utilities?

1. An excavation
2. A ditch
3. A trench
4. A gully

7-39. Bucket teeth should be reversed or replaced when the teeth wear down to approximately what length?

1. 1/2 inch
2. 1 inch
3. 1 1/2 inches
4. 2 inches

7-40. Which of the following ditchers is most commonly used in the NCF?

1. Wheel
2. Ladder
3. Chain
4. Blade

7-41. Before starting any ditcher excavation project, the operator must ensure what type of permit that covers the area to be excavated is attained?

1. Excavation
2. Ditching
3. Digging
4. Trenching

7-42. The boom on the ladder ditcher can be brought no closer than what maximum number of degrees to the vertical?

1. 15°
2. 25°
3. 35°
4. 45°

7-43. What component on a ladder ditcher is used for the major job of cleaning out and smoothing the ditch after the teeth have cut the material?

1. Bucket teeth
2. Crumber
3. Stinger
4. Conveyor

7-44. The chain teeth on a chain ditcher is used to cut and lift the cut material to the surface.

1. True
2. False

7-45. Which of the following ditchers dig faster in dense material and is preferred for cross-country digging where speed is needed?

1. Wheel
2. Ladder
3. Chain
4. Blade

Learning Objective: Recognize the principles of graders and grader components.

7-46. What is the primary purpose of a grader?

1. Dig, load, and dump material with the blade in low elevations
2. Cut and move material with the blade for final shaping and finishing
3. Rip and cut extremely hard material with the blade for crusher operations
4. Rip and excavate in-place aggregates with the blade and ripper attachment

7-47. What component of a grader permits passing through depressions or ditches one wheel at a time?

1. Tandem drive
2. Articulated frame
3. Oscillating frame
4. Longitudinal drive

7-48. Which of the following types of grader steering helps compensate for side drift when turning windrows, keeps tandems on firm footing when clearing ditches, and increases stability on side slope work?

1. Four-wheel
2. Front-wheel
3. Crab
4. Rear-wheel

7-49. Articulating the grader sharply can position the rear tires to run into the blade when the blade is angled in an acute position.

1. True
2. False

7-50. Which of the following parts of a front axle on a grader allows the front wheels to lean as well as turn?

1. The upper section
2. The intermediate section
3. The lower section
4. The center section

7-51. During spreading operations, what term is used to describe the leading edge of a grader blade?

1. The heel
2. The finger
3. The arch
4. The toe

7-52. What term is used to describe the grader rotatable ring?

1. Side shift guide
2. Drawbar
3. Circle
4. Scarifier

7-53. What component carries the full--horizontal load on the grader blade?

1. Side shift guide
2. Drawbar
3. Circle
4. Scarifier

7-54. What component of the grader is used to break up material too compacted to be penetrated by the blade?

1. Circle knees
2. Drawbar
3. Side shift breaker
4. Scarifier

Learning Objective: Recognize the principles of grader operations.

7-55. The extensive skill required to perform as an effective grader operator is only gained through practice and on-the-job experience.

1. True
2. False

7-56. An operator of a grader counteracts a pulling force to the right on the front of the grader by performing what operation?

1. Leaning the top of the front wheels to the right
2. Leaning the top of the front wheels to the left
3. Turning the steering wheel to the right
4. Turning the steering wheel to the left

7-57. When you are grading on a project, it is more efficient to turn the grader around than grade in reverse or back the grader when the distance of the pass exceeds how many feet?

1. 400
2. 600
3. 800
4. 1,000

7-58. Which direction is a blade pitch adjusted to achieve a greater cutting action?

1. Upright
2. Backward
3. Slight forward
4. Fully forward

7-59. The proper moisture content supports the binding of material required for compaction.

1. True
2. False

- 7-60. What is the first cut performed when cutting a ditch?
1. Ditch cut
 2. Shoulder pickup
 3. Marking cut
 4. Spreading pass
- 7-61. At what degree angle is the grader blade positioned to perform an efficient ditch cut?
1. 90°
 2. 75°
 3. 65°
 4. 45°
- 7-62. What term is used to describe the operation that spreads material away from the ditching operations and toward the middle of the road?
1. Ditch cut
 2. Shoulder pickup
 3. Spreading pass
 4. Crowning
- 7-63. When you are cutting the backslope of a ditch, the circle and blade is set in a position that ensures the cut material will flow in what direction?
1. Outside the right rear tandem
 2. Outside the right front tire
 3. Inside the right rear tandem
 4. Inside the right front tire
- 7-64. What term is used to describe the slope of a road from the center line of the road toward the shoulders?
1. Foreslope
 2. Backslope
 3. Travelway
 4. Crown
- 7-65. At what direction should an operator position the front wheels of a grader when performing high bank cuts?
1. Lean the top of the wheels towards the bank
 2. Lean the top of the wheels away from the bank
 3. Steer the wheels towards the bank
 4. Steer the wheels away from the bank
- 7-66. When performing blade mix operations, the operator should pitch the blade slightly forward and angled at what degree angle?
1. 10°
 2. 20°
 3. 30°
 4. 40°
- 7-67. An operator should raise the grader blade to what height from the surface when performing snow removal operations?
1. 1/2 to 1 inch
 2. 1 1/2 to 2 inches
 3. 2 1/2 to 3 inches
 4. 3 1/2 to 4 inches
- 7-68. What term is used to describe the operation of a fine cut or fill of a surface to achieve the final desired elevation?
1. Finish grading
 2. Elevation achieving
 3. Blue topping
 4. Cat skinning
- 7-69. What grader efficiency factor percentage is used for computing grader time estimates?
1. 90 percent
 2. 80 percent
 3. 70 percent
 4. 60 percent

Learning Objective: Recognize the principles and components of scrapers.

- 7-70. What term is used to describe the type of dozer that pushes a scraper through heavy or consolidated material?
1. Drive cat
 2. Push cat
 3. Thrust cat
 4. Shove cat
- 7-71. Which of the following types of equipment can be used to load scrapers?
1. Crane clamshell
 2. Conveyor
 3. Front-end loader
 4. All of the above
- 7-72. In what manner is material loaded in a paddle wheel scraper?
1. Bottom loaded by a paddle wheel elevator
 2. Top loaded by a paddle wheel elevator
 3. Force loaded from the cutting edges
 4. Bottom loaded by screw augers
- 7-73. What component on a scraper permits the tractor and scraper to tip independently from side to side?
1. Vertical kingpin swivel
 2. Horizontal gooseneck
 3. Longitudinal horizontal hinge
 4. Vertical tip hinge
- 7-74. On a three-piece cutting edge, what term is used to identify the center cutting edge?
1. Stinger
 2. Point cutter
 3. Scraper
 4. Intermediate bit
- 7-75. The bottom front sides of a scraper bowl usually have bolt-on wear plates that are known by what term?
1. End bits
 2. Wear bits
 3. Side cutters
 4. End cutters